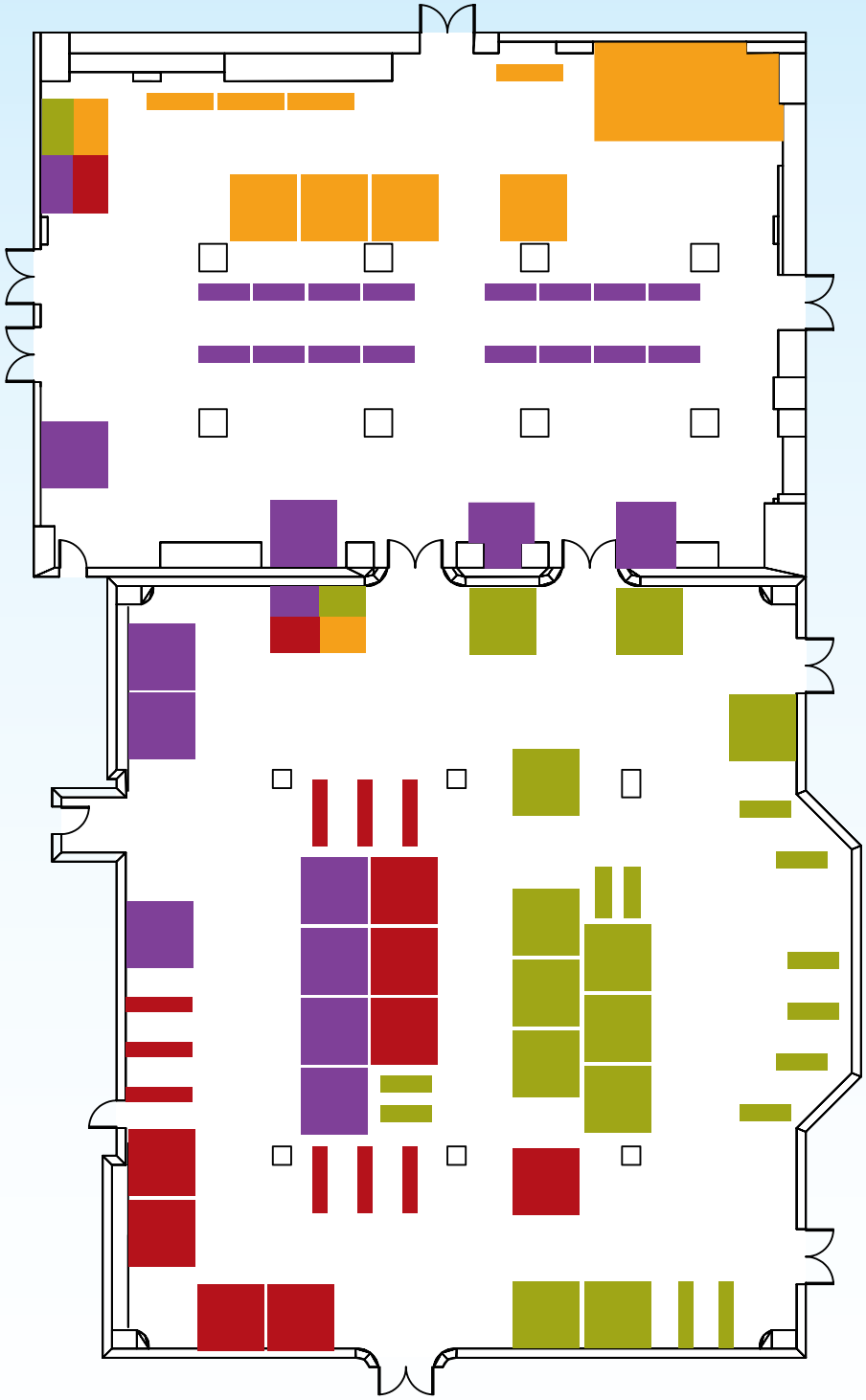
caBIG™ Infrastructure

Biospecimen Collection and Imaging

Molecular Analysis

Clinical Research

caBIG™ World's Fair 2008



The caBIG™ World's Fair is your chance to see caBIG™ in action through tool demonstrations, posters, exhibitors, Knowledge Centers and Support Service Providers. Visit the four main areas – **Biospecimen Collection and Imaging**, **Clinical Research**, **Molecular Analysis**, and **caBIG™ Infrastructure** – to learn about getting connected to caBIG™!

Welcome to the caBIG™ World's Fair Exhibition!

The World's Fair will present caBIG™ tools and infrastructure, posters, exhibitors, and representatives from the caBIG™ Enterprise Support Network, grouped into four categories: Biospecimen Collection and Imaging; Clinical Research; Molecular Analysis; and caBIG™ Infrastructure. Visitors to the World's Fair will be able to find, for any given area of need, the range of possible solutions and support, all in one place.

Throughout the meeting, you will be able to view posters and tech demos, learn more about caBIG™ in action, and meet with vendors who are offering caBIG™-compatible tools and products.

Visit each of the tools included in the World's Fair at stations equipped with pre-recorded demonstrations, which will play throughout the meeting. In addition, tool experts will staff the stations in person during two dedicated World's Fair events on **Monday, June 23, from 5:30 p.m. - 8:00 p.m., and Tuesday, June 24, from 4:30 p.m. - 7:30 p.m.** During those times, experts will be on hand to conduct ad hoc demonstrations and respond to questions from meeting participants.

To help contextualize this experience, a storyline has been created to show how these tools could work together. This hypothetical narrative as your introduction to the caBIG™ World's Fair.

LOCATION: Blue Room Prefunction/Blue Room

Category	Tools & Resources	Case Development
Biospecimen Collection and Imaging	caTissue NCIA	Harry Jones, a cancer patient, has undergone chemotherapy for the past two months as part of a clinical trial. Harry's oncologist, Dr. Wynn, ordered a number of tissue samples when Harry enrolled in the trial. The samples were processed and data were entered into the tissue repository via **caTissue**. In addition, after receiving Harry's consent, Dr. Wynn also requested that some tissue samples be shipped to the Genetic Research Center for genomic studies. This morning, Harry experiences severe discomfort and his family rushes him to Arlington Medical Clinic. Soon after a nurse practitioner takes a blood draw, Dr. Wynn performs an initial overall evaluation and orders images for Harry. The cancer images are electronically stored in the **NCIA**.
Clinical Research	caAERS C3PR PSC caXchange	After evaluating Harry's medical condition, Dr. Wynn concludes that Harry is experiencing moderate side effects from chemotherapy. Dr. Wynn reports the adverse event to the trial's Principal Investigator in **caAERS**, and Harry's participation in the trial is put on hold. In another city, Dr. Daniels is working on a phase III clinical trial for a new cancer drug candidate. She is excited when Dr. Wynn calls to inform her that another one of his patients, Allen Smith, might meet the eligibility criteria for participation in this study. Dr. Daniels uses caGrid to access Allen's records and reviews his blood, tissue, and image results. She concludes that Allen is indeed eligible for the trial. Upon receiving his consent, Dr. Daniels enrolls Allen into her clinical trial using **C3PR**. She also schedules an appointment with Allen using the **Patient Study Calendar**. Meanwhile, Allen's clinical data from Arlington Medical Center are routed through **caXchange** into Dr. Daniels' caBIG™-compatible clinical trials system.
Molecular Analysis	caArray GenePattern geWorkbench caGWAS caB2B	Meanwhile, thousands of miles away, researchers at the Genetic Research Center conduct a series of genomic analyses on Harry's tissue samples. First, they carry out a number of gene expression assays to help them better understand the activity of the gene expression pattern associated with Harry's cancer. The gene expression assay results are uploaded into a data repository, caArray. The **caArray** data are then fed into **GenePattern** and **geWorkbench**, where the scientists perform integrated analyses and visualization. Finally, they use **caGWAS** to evaluate Harry's genome-wide genetic variations. At Arlington Medical Clinic, Dr. Wynn retrieves the genomic study results from the Genetic Research Center via **caB2B**, which allows him to access various caGrid data services available within the caBIG™ Infrastructure. Based on Harry's genetic profile, Dr. Wynn receives approval from the trial's PI to modify Harry's chemo cocktail to achieve higher efficacy against his cancer with reduced side effects on his immune system.
caBIG™ Infrastructure	caCORE caCORE SDK caGrid CTODS	The data sharing and collaboration that help treat Harry and Allen are made possible as a result of not only various caBIG™ tools, but also the **caBIG™ Infrastructure**—the building blocks that provide the foundation for these interoperable information management systems. **caCORE** and **caCORE SDK** are key elements in this infrastructure ensuring that data and analytical services are semantically compatible and able to connect to **caGrid**. **CTODS** enables patient data to be stored and shared in identifiable or de-identified form to meet research needs.